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I N S E C T P E S T S U R V E Y B U L L E T I N

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THE MORE IMPORTANT RECORDS FOR JULY, 1933

In addition to reports of generally severe grasshopper infestation occurring in the Great Plains we have reports of very heavy infestation in the upper and lower peninsulas of Michigan, the northeastern one third of Wisconsin and two outbreaks in California, one in the Imperial Valley and the other in the San Francisco Bay district. The infestation in the Mississippi Delta continued severe during July and several carloads of bait were distributed in that district. In northeastern Nebraska 18 carloads were used. We do not have definite figures for the quantity of bait used in the Dakotas and Minnesota where the heaviest control campaign is under way.

Serious chinch-bug outbreaks are under way in eastern Kansas, northern Missouri, southern Iowa, central Illinois and Indiana, southern Michigan, and western Ohio. In Illinois and Ohio infestations are reported as more severe than they have been in years.

The green June beetle is unusually prevalent this year in Ohio, Missouri, and Tennessee.

Very heavy infestations of the Colorado potato beetle are reported from New England, Wisconsin, Minnesota, North Dakota, eastern Tennessee, and eastern Wyoming. In the West these beetles are decidedly more numerous than they have been before in the Yakima Valley of Washington and an infestation covering a few square miles near the Weber-Davis County line has been discovered in northern Utah.

Very heavy infestations of the potato leafhopper with the resulting hopper-burn injury are reported from the Middle Atlantic States from Connecticut to Virginia and westward to Iowa and Minnesota.

The potato tuber worm has been found in a number of potato fields in central Iowa. This is the first record we have for the State of Iowa and the first record of its being established in potatoes in the Central States.

The Mexican bean beetle was found far to the northwest of its known distribution in the St. Paul - Minneapolis district of Minnesota. This is believed to be a commercial jump and extermination is being attempted.

The gladiolus thrips was reported for the first time during July in eastern Iowa and Delaware.

G E N E R A L F E E D E R S

GRASSHOPPERS (Acrididae)

Michigan. Ray Hutson (July 22): Grasshoppers are very abundant in the upper peninsula and the northern part of the lower peninsula.

Wisconsin. E. L. Chambers (July 24): Very serious damage has occurred in about 30 counties of northern Wisconsin, principally the northeastern third. Nearly 100 tons of white arsenic was used in baits in addition to several car-loads of molasses and many carloads of bran.

Minnesota. A. G. Ruggles (July 15): We are controlling grasshoppers remarkably well in spite of ideal weather for the hoppers. The prediction made last December was 99 per cent correct.

North Dakota. J. A. Munro (July 22): Reports indicate that various species of grasshoppers are very abundant over most of the area previously reported as infested. Where control was begun early, successful poisoning campaigns have resulted. Eggs are now being deposited by Melanoplus bivittatus Say, M. mexicanus Sauss., and Cannula pellucida Scudd.

R. L. Olson (July 17): Strong grasshopper flights high in the air were noted on July 9, in Bowman County, all going southeastward.

Mississippi. C. Lyle (July 21): Several scattered outbreaks of grasshoppers, chiefly M. differentialis Thos., in the Mississippi Delta were reported during the past month. Serious damage continued on several thousand acres of corn, soybeans, and cotton at Parchman until the application of several car-loads of poisoned bait gave control.

Nebraska. R. Roberts (July 20): Grasshoppers have been very abundant in the northeastern part of the State. A state-aided control campaign has been in progress for over a month, 18 carloads of poisoned bran mash have been distributed, and good kills have been reported. Reports have also been received from Douglas, Saline, and Harlan Counties.

Wyoming. C. L. Corkins (July 21): Grasshoppers are very abundant. A severe outbreak developed during early July in Crook County. The valleys are infested with M. bivittatus, and the grazing lands in the hills have a mixed infestation of any species, which are now migrating to the valleys. Certain sections of Sheridan County have serious troubles. Minor outbreaks have developed in Fremont, Johnson, and Weston Counties.

Utah. G. F. Knowlton (July 11): M. bivittatus is damaging sugar beets, strawberry plants, and black-cap raspberries at Hooper. Grasshoppers are damaging alfalfa and grain on the ranches in Skull Valley, particularly at Iosepa. Large numbers of M. mexicanus are becoming adult in many parts of Tooele County and are causing serious damage to crops at Grantsville. (July 21): Grasshoppers completely destroyed a 3-acre sugar-beet patch, then advanced upon wheat and barley during June, in the low area west of Provo.

California. A. E. Michelbacher (July 20): In at least one area near Tracy the differential grasshopper, M. differentialis, is rather abundant. I have

watched the development, and at the present time a large number have reached the adult stage.

Evening Star, Washington, D. C. (July 26): The worst grasshopper plague in 17 years is being experienced by Imperial Valley. Desperate in their efforts to destroy the pest, farmers plan to import pheasants in the hope that the birds will eat the hoppers before the second crop sprouts wings. Grapefruit have been devoured by the thousands.

WHITE GRUBS (Phyllophaga spp.)

Illinois. W. P. Flint (July 22): Serious damage from white grubs is beginning to show in cornfields in northern Illinois.

Wisconsin. E. L. Chambers (July 24): Serious losses from white grubs are being reported by nursery inspectors and other field men in some of the southern counties.

Iowa. H. E. Jaques (July 24): The area of serious infestation in northwestern Iowa seems to be enlarging to the east. The abundance in other parts of the State seems less than normal for this brood.

Missouri. L. Haseman (July 25): Only the usual number of white grubs at this season in central Missouri; though in southern Missouri one orchardist reported defoliations of apple recently.

GREEN JUNE BEETLE (Cotinis nitida L.)

Ohio. N. F. Howard (July 10): Adults were present in large numbers on sweet corn and cucumbers at Marietta on July 8. They were so numerous as to resemble a swarm of large bumble bees.

Missouri. L. Haseman (July 25): At Columbia the green June beetle was quite abundant for a few days, July 15 to 20.

Tennessee. G. M. Bentley (July 22): Green June beetles were very abundant in the Cumberland Plateau section and Knox County.

JAPANESE BEETLE (Popillia japonica Newm.)

General. C. H. Hadley (July 24): In the older infested territory the Japanese beetle is less abundant than last year. This is especially true in the Philadelphia suburban region. In the more recently infested territory the beetle is abundant and feeding extensively on the usual preferred food plants. In addition to those plants, the beetle is this year feeding on alfalfa, clover, and beans. It has also been causing, for the first time, considerable injury in nursery plantings to evergreens, especially Cryptomaria and juniper, as well as to rhododendrons and azaleas. The insect has also been reported as feeding extensively on a cultivated banana plant in a yard at Moorestown. Feeding on waxmyrtle (Myrica carolinensis) has been extensive at the Wildwood Golf Course at Burleigh, N. J.

New Jersey. Headlee and Burdette (July 24): The Japanese beetle is very abundant.

Delaware. L. A. Stearns (July 22): The Japanese beetle is reported in northern Delaware--Wilmington and vicinity; the infestation is severe, on the increase, and spreading southward.

District of Columbia. A. N. Caudell (July 10): The Japanese beetle was found at the corner of Keefer Place and 6th Street, N. W., Washington. It may be found common all over our neighborhood now.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

New York. C. H. Hadley (July 24): This beetle is more abundant on Long Island this year than it was in 1932. Reports of injury have been received from small property owners as well as from large estates in the infested region. Extensive damage to such ornamental plants as chrysanthemums, asters, orchids, and dahlias is common, and in gardens the feeding is heavy on cabbage, eggplant, and peppers.

COMMON RED SPIDER (Tetranychus telarius L.)

Georgia. O. I. Snapp (July 12): Weather has been dry and hot and red spiders are more abundant than usual at Marshallville, causing considerable damage to yard plants.

Florida. J. R. Watson (July 24): According to F. W. Walker, entomologist at our field station at Monticello, the red spider T. telarius is doing considerable damage to foliage of pecans in that district.

Indiana. J. J. Davis (July 26): The red spider was heavily infesting Colorado blue spruce at Valparaiso June 20. During the past month it has also been abundant on evergreens and phlox at Lafayette.

Kentucky. W. A. Price (July 24): Red spiders are found commonly over the State. They have been especially injurious to evergreens and ivy.

Wisconsin. E. L. Chambers and assistants (July 1): A small red spider, as reported by the county agent of Grant County, is destroying many fine evergreens. They have killed seven fine white pines 30 years old and a good many more are badly affected.

Minnesota. A. G. Ruggles (July 15): Red spiders are very injurious to evergreens and raspberries this season.

Tennessee. G. M. Bentley (July 22): The red spider has been fairly common on silver maple throughout eastern Tennessee during June and July.

Mississippi. C. Lyle (July 21): Reports of injury to various ornamental plants by red spiders have been received recently from Lee, Copiah, Hancock, and Sunflower Counties. One report of a heavy infestation on cotton was received from Le Flore County.

Nebraska. R. Roberts (July 20): A report was received the latter part of June from Keith County, stating that the red spider was attacking a Black Hills spruce tree. A Douglas County correspondent reported it working on a willow tree.

Utah. G. F. Knowlton (July 21): Red spider injury has been quite general and often severe in Utah County raspberry patches this year.

C E R E A L A N D F O R A G E - C R O P I N S E C T S

CORN

CHINCH BUG (Blissus leucopterus Say)

Northeastern United States. E. P. Felt (July 27): Infestations in lawns have come to my notice recently from Philadelphia, Pa., northern New Jersey, southern New York, and southern Connecticut.

Pennsylvania. J. S. Pinckney (July 22): An outbreak was reported on corn near Goodyear, Cumberland County.

Ohio. T. H. Parks (July 13): We are having the worst infestation in many years. May was rainy; June was dry. Bugs have destroyed many plantings of barley in Madison, Union, and Delaware Counties. They began moving out of barley and wheat fields the last week of June and were still moving July 13. One gas company has already sold 5,000 gallons of tar for making barriers. Madison County shipped in several carloads of tar. Miles of tar lines have been made and as many dust barriers. A few fields of corn were ruined before the farmers were aware of the bugs. The area affected is mainly in the west-central counties. Reports of damage have reached us from 14 counties.

Indiana. J. J. Davis (July 25): The chinch bug has been an outstanding problem in many sections of the State. There are two centers of infestation. One in the northwestern corner includes Newton, Benton, Lake, and LaPorte Counties. The other is in the northeastern part of Indiana and includes the counties of Jay, Adams, Allen, Steuben, Wells, Elkhart, and Blackford. Reports of infestations in small grain or migrations from small grain to corn have been reported from the above areas throughout the month. June 29 the bugs were moving from barley and oats into corn at Fowler. Apparently barley is the source of the heaviest infestations.

Illinois. W. P. Flint (July 22): During the past month the chinch bug has been the outstanding crop pest in the State. Spotted heavy damage has occurred from Randolph, Montgomery, Clay, and Jasper Counties on the south to Rock Island, Henry, Lee, DeKalb, Kane, and Cook Counties on the north. The first brood has now matured and a general flight has taken place over the cornfields. The weather is so dry that the second brood will probably cause serious damage throughout the heart of the Illinois corn belt. From present indications it is possible that the bugs may cause a loss of 25 per cent of the corn crop in this area.

Michigan. R. H. Pettit (July 12): I have just received word that chinch bugs have destroyed many fields of corn, barley, and some oats at the town of Seneca, Lenawee County. This is the first serious outbreak that we have had in several years.

Ray Eutson (July 22): There are several outbreaks in Berrien County. From time to time we have had trouble in others of the southern counties, but this

is the first time the bug has caused any damage in Berrien.

Minnesota. A. G. Ruggles (July 15): The chinch bug is very abundant in Goodhue, Washington, Mille Lacs, Anoka, and Wabasha Counties.

Iowa. C. J. Drake (July 27): Chinch bug injury has been very severe in the two southern tiers of counties in Iowa. Losses are quite heavy, especially from Taylor and Union Counties east to Lee and Louisa Counties. In a few cases some injury was done in the third tier of counties. At the present time the adults of the first generation are depositing their eggs and the young of the second generation are beginning to appear in considerable numbers.

Missouri. L. Haseman (July 25): Infestation has been general and in some places very heavy over the northern half of the State. The bugs are most abundant north of the Missouri River and near the Iowa line.

Tennessee. G. M. Bentley (July 22): The chinch bug is abundant around Manchester in Coffee County, where it is damaging corn.

Nebraska. R. Roberts (July 20): Numerous reports were received from Richardson, Saline, Gosper, Lancaster, and Furnas Counties.

Kansas. H. R. Bryson (July 25): Observations made on a trip through Morris, Riley, Geary, Marion, Dickinson, Butler, Sedgwick, and Chase Counties revealed chinch bugs being quite destructive to corn and sorghums and adjoining fields of small grains. Dry weather was favorable to the bugs in their attack on the row crops. Reports of injury have also been received from Wabaunsee, Cloud, and Miami Counties.

CORN EAR WORM (*Heliothis obsoleta* Fab.)

New York. P. J. Parrott (July 24): The first brood of corn ear worm is moderately abundant.

N. Y. State Coll. of Agr. News Letter (July): Corn ear worms are prevalent in Suffolk County and found working on tassels; also numerous in potato fields.

New Jersey. Headlee and Burdette (July 24): The corn ear worm is very abundant.

Pennsylvania. T. L. Guyton (July 20): The corn ear worm is very abundant at Harrisburg at the local market.

Maryland. E. N. Cory (July 24): Ear worms are attacking corn in Somerset and Montgomery Counties.

Virginia. H. G. Walker (July 26): The corn ear worm is moderately abundant.

Georgia. O. I. Snapp (June 28): It is very abundant and has ruined the first crop on a quarter of an acre of tomatoes at Fort Valley.

Florida. J. R. Watson (July): The corn ear worm is very abundant.

Ohio. N. F. Howard (July 10): The corn ear worm is doing considerable damage to tomatoes in southern Ohio.

Indiana. J. J. Davis (July 25): The corn ear worm was reported abundant and destructive at Indianapolis, Shelbyville, Millersburg, Bedford, Elkhart, Liberty, Goshen, and Hamlet. In all cases, corn was infested and in several instances the infestations reported were in the tassels. At Liberty and Lafayette serious infestations occurred in green tomatoes.

Illinois. W. P. Flint (July 22): Full-grown larvae are very abundant at this time in corn tassels, ears of sweet corn, and tomatoes. Heavy damage will probably occur later in the summer.

Kentucky. W. A. Price (July 24): The corn ear worm is very abundant. It has been very troublesome generally over the State on both corn and green tomatoes.

Missouri. L. Haseman (July 25): Early sweet corn has been heavily infested. Some damage was done to later corn before tassels appeared.

Nebraska. R. Roberts (July 20): On July 17 a report was received stating that fields in Hamilton County were infested.

STALK BORER (Papaipema nebris nitela Guen.)

Maine. H. B. Peirson (July 5): The common stalk borer is abundant on corn at Augusta.

Indiana. J. J. Davis (July 25): Stalk borers were damaging corn at Vincennes June 30. They were very small at that time. No other authentic reports have been received.

Kentucky. W. A. Price (July 24): The common stalk borer has been injurious to corn in several places in the State, notably Glen Springs, Salyersville, Princeton, and Lexington.

Iowa. H. R. Jaques (July 24): Stalk borer is occasionally appearing almost everywhere and doing some marked damage in a few regions.

Missouri. L. Haseman (July 25): During the latter part of the month several have complained of stalk borers. They are not so abundant as usual.

Nebraska. R. Roberts (July 20): The common stalk borer was reported from Merrick County on July 15.

SOUTHERN CORN STALK BORER (Diatraea cramboidoides Zell.)

North Carolina. C. H. Brannon (July): This insect is unusually destructive to corn all over the State.

Florida. J. R. Watson (July 24): Elasmopalpus lignosellus Zell. and the larger corn stalk borer have been reported as doing much damage to late corn in the Monticello district.

Alabama. J. M. Robinson (July 20): The southern corn stalk borer was reported at Dothan attacking corn, sorghum, and P. O. J. cane.

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

A. Alabama. J. M. Robinson (July 20): The lesser corn stalk borer is reported at Tallasseee; corn is falling over.

Mississippi. C. Lyle (July 21): The lesser corn stalk borer has continued to attract attention during July, complaints of injury to corn having been received from Clark, Jasper, Walthall, Pike, Jones, and Noxubee Counties. Injury to Irish potatoes was reported from Clark County.

ARMYWORM (Cirphis unipuncta Haw.)

Pennsylvania. H. E. Hodgkiss (July 26): The armyworm outbreak is rather severe.

Wisconsin. E. L. Chambers (July 24): Two serious outbreaks have been encountered within the last few days, one at Camp Douglas and the other near Appleton. Organized control was necessary in each case.

North Dakota. J. A. Munro and assistants (June 14): The armyworm is moderately abundant at Eastgate, Stark County. It is in the moth stage; very abundant in places.

WEBWORMS (Crambidae)

Indiana. J. J. Davis (July 25): Webworms completely destroyed a large field of corn at Rochester, June 27.

Illinois. Extension Messenger, Coll. of Agr., Univ. of Ill. (July 26): Striped sod webworms, which destroyed patches or even entire lawns in Illinois during the summer of 1931, are again threatening to ruin lawns, golf courses, and pastures.

A CORN SILK BEETLE (Luperodes sp.)

Louisiana. W. J. Hinds (July 27): A corn silk beetle has seriously injured peaches and prevented the setting of grain on corn in Grant Parish especially. Damage occurred from about June 20 to July 20. Late corn has been seriously injured in this section quite regularly for the past five years or more.

CORN ROOT APHID (Anuraphis maidi-radicis Forbes)

Iowa. C. J. Drake (July 27): The corn root aphid is doing considerable damage in Iowa and is especially abundant in the southern and eastern parts of the State. Near Osceola it practically destroyed a 10-acre field of corn.

CORN LEAF APHID (Aphis maidis Fitch)

Iowa. C. J. Drake (July 27): The corn leaf aphid is also extremely abundant, and a large number of inquiries are being received from different parts of the State. It is numerous enough in some fields to be doing some commercial damage.

SPOTTED CUCUMBER BEETLE (*Diabrotica duodecimpunctata* Fab.)

Ohio. T. H. Parks (July 7): Visited two fields of early sweet corn near Columbus where this root worm had practically destroyed the crop. Later, planted corn was not injured. The injured corn was planted on land that produced tomatoes last year.

ALFALFA

ALFALFA WEEVIL (*Hypera postica* Gyll.)

Wyoming. C. L. Corkins (July 21): Alfalfa weevils are scarce.

Utah. G. F. Knowlton (June 29): The alfalfa weevil is causing moderate to severe damage at Leamington.

California. A. E. Michelbacher (July 20): In the district about Tracy the larvae and adults are hard to find, while in the Pleasanton area on the third crop 63 larvae have been taken per 100 sweeps. In the district close to Miles the weevil is rather abundant. From one field which is about ready to be cut 1,374 larvae were taken per 100 sweeps. The counts here given for any district are the highest record for any field under observation and were made on July 20.

SOYBEAN

BEAN LEAF BEETLE (*Cerotoma trifurcata* Forst.)

Louisiana. W. E. Hinds (July 27): The bean leaf beetle has caused extensive ragging of soybean foliage generally. It appears that soybeans now constitute one of the main food supplies of this species in Louisiana.

SUGARCANE

SUGARCANE BORER (*Diatraea saccharalis* Fab.)

Louisiana. W. E. Hinds (July 27): Less abundant than usual at this season. Climatic conditions apparently decreased multiplication during the second generation in many fields. Third generation now beginning. Comparatively few fields show prospect of serious damage before end of season. Prospect is for generally light injury.

FRUIT INSECTS

APPLE

CODLING MOTH (*Carpocapsa pomonella* L.)

New Hampshire. L. C. Glover (July 24): The codling moth is moderately abundant. An unusually large flight has been reported in an orchard in Hollis, where it is thought to be more abundant this year than it has been for several years.

New York. N. Y. State Coll. of Agr. News Letter (July): Early in the month heavy flights of moths occurred. Side worm injury is generally severe, particularly in the Niagara district. (Abstract, J.A.H.)

P. J. Parrott (July 24): The codling moth is moderately to very abundant in western New York.

Delaware. L. A. Stearns (July 22): Activity of the second brood is just commencing; first-brood injury is generally lighter than at any time during the past four years.

Illinois. W. P. Flint (July 22): A heavy wave of worm hatch occurred in central Illinois during the past week.

Michigan. R. Hutson (July 22): The codling moth is very abundant.

Wisconsin. E. L. Chambers (June 30): The codling moth is more numerous than usual throughout the entire State.

Iowa. H. E. Jaques (July 24): The codling moth is, as usual, doing much damage.

Missouri. L. Haseman (July 25): There have been two heavy waves of second-brood emergence in northern Missouri, July 2 to 7 and July 12 to 18. In central and southern Missouri heavy emergence has been continuous except for a few days.

Tennessee. G. M. Bentley (July 22): The codling moth was very abundant throughout the apple district during the latter part of June.

Kansas. H. R. Bryson (July 25): The codling moth was more abundant at Wathena and Troy this year than it was last year.

Utah. G. F. Knowlton (July 21): Reports have been received of fewer moths caught in "hooch" pots in Utah County this year than last. In spite of this there is a considerable amount of wormy fruit, as the apple crop is rather light.

Washington. E. J. Newcomer (July 21): Second-brood moths are beginning to appear in Yakima County. The infestation, so far, seems to be less than last season.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

Utah. G. F. Knowlton (July 21): The fruit tree leaf roller has seriously damaged about 150 acres of apple trees at Orem, practically all leaves having been riddled in the most severely damaged orchards. Less severe damage occurred in many other orchards not included above. The most severe injury occurred in an orchard in which an attempt to control orchard insects by light traps was made last year.

APHIDS (Aphididae)

Vermont. H. L. Bailey (June 28): The heaviest infestation of the rosy apple aphid (Anuraphis roseus Baker) I have ever observed in the State was noted at Topsham. Some apples an inch in diameter were half covered with aphids. Probably 50 per cent of the apples in an orchard of 800 trees show serious

damage. Very few winged forms were noted on above date.

New York. P. J. Parrott (July 24): The green apple aphid (Aphis pomi DeG.) is moderately abundant in western New York.

N. Y. State Coll. of Agr. News Letter (July): The apple aphid (A. pomi) persisted throughout the greater part of the month both in the Hudson River Valley and the western part of the State, in some cases doing some damage. (Abstract, J.A.H.)

Pennsylvania. H. E. Hodgkiss (July 26): The rosy aphid is very abundant. Damage very severe on apple fruits.

Ohio. E. T. Mendenhall (July 3): The rosy apple aphid was very bad and did considerable damage to apple in Licking County and central Ohio.

Michigan. R. Hutson (July 22): The green apple aphid is moderately abundant.

Tennessee. G. M. Bentley (July 22): A. pomi is moderately abundant in east Tennessee.

LEAFHOPPERS (Cicadellidae)

New Hampshire. L. C. Glover (July 24): A severe infestation of the white apple leafhopper, Typhlocyba pomaria McAtee, has been reported from an orchard in Stratham.

Ohio. T. H. Parks (July 1): A heavy infestation of leafhoppers developed in a large commercial orchard near Berlin Heights. Prompt treatment killed more than 90 per cent, as estimated by the owner.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

Connecticut. P. Garman (July 24): Emergence in cages placed under bearing apple trees is late. Few flies are seen in commercial orchards near New Haven.

New York. N. Y. State Coll. of Agr. News Letter (July): The adults began emerging late in June and increased rapidly during the early part of the month. (Abstract, J.A.H.)

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

New Hampshire. L. C. Glover (July 24): A very severe outbreak has been reported from Hampton Falls. About 10,000 apple trees are heavily infested.

Connecticut. P. Garman (July 24): The European red mite is appearing in some numbers on Baldwins in New Haven County.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (July 24): Broods of the oriental fruit moth are fairly distinct. Orchards in the north-central portion of the State are the most heavily infested.

New York. P. J. Parrott (July 24): The oriental fruit moth is moderately abundant in western New York.

N. Y. State Coll. of Agr. News Letter (July 24): The third brood is expected to do considerable damage to the peach fruits in Niagara County. The first two broods have caused only a moderate amount of damage thus far, mostly to the terminal growths.

New Jersey. T. J. Headlee and R. C. Burdette (July 24): The oriental fruit moth is moderately abundant.

Delaware. L. A. Stearns (July 22): Second-brood oriental fruit moth activity ended; infestation generally light; parasitization rather high but slightly less than that recorded during 1932.

Maryland. E. N. Cory (July 22): The oriental fruit moth is very abundant locally.

Georgia. O. I. Snapp (July 20): The infestation in harvested fruit at Fort Valley is very light, certainly less than 1 per cent.

Michigan. R. Hutson (July 22): The oriental fruit moth is moderately abundant.

Tennessee. G. M. Bentley (July 22): The oriental fruit moth is moderately abundant in northeastern Tennessee; fairly common in nursery.

Mississippi. C. Lyle (July 21): Injured peach twigs were received recently from Almory, Monroe County, and Jackson, Hinds County.

PEACH BORER (Aegeria exitiosa Say)

Georgia. O. I. Snapp (July 20): The infestation at Fort Valley appears to be lighter than usual, which we attribute to field rats and mice, as they destroyed a high percentage of the pupae in the orchards in 1932. Moth emergence started earlier than usual. The first eggs of the season hatched on July 20.

Nebraska. R. Roberts (July 20): The common peach tree borer was working on a cherry tree in Butler County, according to a report received the latter part of June.

Oklahoma. C. E. Sanborn (July 20): The peach borer is moderately abundant.

PLUM CURCULIO (Conotrachelus nemiphar Hbst.)

Georgia. O. I. Snapp (July 20): Second-brood larvae have been showing up in the peaches harvested in July at Fort Valley, but the infestation has been less than that of an average year. The dry weather in May and June delayed the emergence of first-generation adults from the soil in peach orchards.

Wisconsin. F. L. Chambers (June 30): Curculios are more numerous than usual throughout the entire State.

Michigan. R. Hutson (July 22): The plum curculio is very abundant.

Missouri. L. Haseman (July 25): Adults of the plum curculio began emerging during the fore part of the month. Some half-grown larvae, however, are still in fallen fruits.

PEAR

PEAR PSYLLA (*Psyllia pyricola* Foerst.)

New York. N. Y. State Coll. of Agr. News Letter (July): The pear psylla increased rapidly during the month throughout the State and in the western section became a serious factor. (Abstract, J.A.H.)

A RUST MITE (*Phyllocoptes schlechtendali* Mal.)

Washington. E. J. Newcomer (July 21): This rust mite has been very common in the Yakima Valley this season, and is doing much damage to pears, prunes, apples, and cherries.

PEAR LEAF BLISTER MITE (*Eriophyes pyri* Pgst.)

New Hampshire. L. C. Glover (July 24): The pear leaf blister mite has been reported from Manchester.

Utah. G. F. Knowlton (July 21): The pear leaf blister mite is damaging several large orchards at Orem.

CHERRY

PEAR SLUG (*Eriocampoides limacina* Retz.)

Indiana. J. J. Davis (July 25): The cherry slug was defoliating cherry trees at Elwood, Lafayette, and Ladoga the latter part of June. On a recent trip to northern Indiana, July 17, the writer observed many cherry trees, as far north as South Bend, brown from the activity of this insect.

RASPBERRY

RASPBERRY FRUIT WORM (*Byturus unicolor* Say)

Connecticut. E. P. Felt (July 24): The raspberry fruit worm was injurious to raspberries at New Canaan.

GRAPE

GRAPE LEAFHOPPER (*Erythroneura comes* Say)

Mississippi. C. Lyle (July 21): Specimens were received from Sucarnoochee in Kemper County recently with the statement that they were abundant on Virginia creeper.

Nebraska. R. Roberts (July 20): The grape leafhopper was reported attacking woodbine in Dewes County, and grapes in Holt County, during the second week in July. An inquiry was also received from Lancaster County.

Utah. G. F. Knowlton (July 6): Adults and nymphs are seriously damaging the older leaves of grapes in a vineyard near Ogden.

GOOSEGRAPE PHYLLOXERA (Phylloxera vitifoliae Fitch)

Mississippi. C. Lyle (July 21): Infested grape leaves were sent to us on June 26 from Wesson in Copiah County.

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

New York. N. Y. State Coll. of Agr. News Letter (July): The grape berry moth was reported as being more prevalent in the Hudson River Valley than it was last year.

GRAPE LEAF BROLLER (Desmia funeralis Hbn.)

Mississippi. C. Lyle (July 21): A heavy infestation was reported on July 14 from Kemper County.

GRAPE LEAF SKELETONIZER (Harrisina americana Guer.)

Maryland. E. N. Cory (July 24): The grape leaf skeletonizer was reported from Dorchester County.

Louisiana. W. E. Hinds (July 27): Complaints of the work of the grape leaf skeletonizer are quite common in many home garden locations. Foliage is quite completely destroyed where no attempt has been made to check it.

GRAPE SAWFLY (Erythraspides pygmaea Say)

Kentucky. W. A. Price (July 24): Specimens were received from Washington with the statement that they were destroying a vineyard.

A SCARABAEID (Pachystethus lucicola Fab.)

Connecticut. W. E. Britton (June 29): A small vineyard was stripped in 3 days at Beacon Falls.

GIANT ROOT BORER (Prionus laticollis Drury)

New York. E. P. Felt (July 24): This broad-necked Prionus was found working in the roots of grape at Bedford Hills, N. Y.

GOOSEBERRY

GOOSEBERRY FRUIT WORM (Zophodia grossulariae Riley)

Utah. G. F. Knowlton (July 21): Gooseberry fruit worms have destroyed fully 80 per cent of the gooseberries in one patch at Orem.

CITRUS

CITRUS WHITEFLY (Dialeurodes citri Riley & How.)

Florida. J. R. Watson (July): Trees are blacker than for several years. Dry weather during June delayed the development of entomogenous fungi.

TRUCK - CROP INSECTS

BLISTER BEETLES (Meloidae)

Vermont. L. C. Glover (July 24): A severe local outbreak of Say's blister beetle, Pomphopoea sayi Lec., was reported from a point in Vermont across the river from Hanover.

Georgia. O. I. Snapp (July 20): Epicauta vittata Fab. is very abundant and causing much damage to commercial plantings of string beans and lima beans at Fort Valley.

North Dakota. J. A. Munro (July 22): Blister beetles have been reported as very injurious to caragana, beans, sweetclover, alfalfa, and to some extent potato foliage. Practically all reports of serious crop damage have come from counties which have also had trouble from grasshoppers.

Missouri. L. Haseman (July 25): Epicauta vittata suddenly appeared in immense swarms in a number of localities in central Missouri.

Kansas. H. R. Bryson (July 25): Blister beetles are causing considerable injury to garden crops in various localities in the State.

Tennessee. G. M. Bentley (July 22): The black blister beetle (E. pennsylvanica DeG.) is rather common on alfalfa and Irish potato in the Cumberland Plateau section and eastern Tennessee.

J. Milam (July 20): E. vittata has been more abundant on tomatoes than common throughout the Clarksville area during July.

Nebraska. R. Roberts (June 20 to July 20): Many reports have been received stating that blister beetles (E. lemniscata Fab.) were attacking garden crops. The immaculate blister beetle (Macrobasis immaculata Say) was working on potatoes in Holt, Rock, and Custer counties. Potatoes in Hamilton and Cherry Counties were being injured by the spotted blister beetle (E. maculata Say).

Utah. G. F. Knowlton (July 21): The blister beetle E. maculata has caused some damage to roses and lima beans at Springville and Payson. (July 27): The blister beetle, E. oregonae Horn, has almost completely defoliated one patch of garden beets at Randolph.

FALSE CHINCH BUG (Nysius ericae Schill.)

Nebraska. R. Roberts (June 20 to July 20): The false chinch bug has received more attention this year than it has for years. It was reported working on radishes in Keith County the latter part of June. This pest was attacking sugar beets, tomato plants, and turnips in Morrill County. Also reported from Scotts Bluff County.

Iowa. C. J. Drake (July 27): The false chinch bug is extremely abundant in many counties in the state. Near Ottumwa I saw a field of rape which had been almost entirely destroyed. In some areas potatoes have suffered. The insect is extremely abundant in flax fields.

Kansas. H. R. Bryson (July 25): These insects are still quite numerous at Manhattan but they are not causing injury. A report of their abundance also has been received from Pauline.

Utah. G. F. Knowlton (July 22): False chinch bugs are very abundant upon weeds in many parts of Utah. The principal damage reported to date is upon truck crops, especially sugar beets, in parts of Washington County.

California. H. J. Ryan (July 18): A number of infestations were reported from different parts of Los Angeles County during the month.

TARNISHED PLANT BUG (*Lygus pratensis* L.)

Utah. G. F. Knowlton (July 6): Tarnished plant bugs are very abundant and are causing some wilting of potato tops at Sunset, Angas, and Clinton. Earlier in the season they were abundant upon alfalfa at Hinckley and Leamington.

POTATO AND TOMATO

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata* Say)

Wisconsin. E. L. Chambers and assistants (July): The Colorado potato beetle was unusually abundant in the northern and eastern parts of the State, damage being particularly severe in Polk and Chippewa Counties, northeastward to Iron and Florence Counties, and thence southward along the lake shore to the southeastern corner of the State. (Abstract, J.A.H.)

Minnesota. A. G. Ruggles (July 15): The Colorado potato beetle is very abundant.

North Dakota. J. A. Munro (July 22): The Colorado potato beetle is very abundant at Fargo on potatoes.

Iowa. H. E. Jaques (July 24): The Colorado potato beetle is about normally abundant throughout the State.

Tennessee. G. M. Bentley (July 22): The Colorado potato beetle is very abundant in eastern Tennessee. Adults are very common on wild potato.

Utah. G. F. Knowlton (July 19): The Colorado potato beetle have been found at Roy and Clinton as well as at Sunset. Most of the first-generation larvae are now about mature or have pupated, and quite a number of newly emerged adults are to be found in infested fields. The infested area covers a few square miles near the Weber-Davis County boundary, with infestations occurring on both sides of the county line. One field at Roy was sprayed for prevention of first-generation damage, and moderate damage by the second generation is reported.

Wyoming. C. L. Corkins (July 21): The Colorado potato beetle has been bery abundant on the eastern slope of Wyoming. Moderately abundant over the State.

Washington. E. J. Newcomer (July 21): The Colorado potato beetle is much more numerous than usual in the Yakima Valley and extensive spraying has been done.

POTATO TUBER WORM (Gnorimoschema operculella Zell.)

Iowa. C. J. Drake (July 27): The potato tuber moth may be found in considerable numbers in potato fields in the vicinities of Des Moines, Nevada, and Ames. In fact, caterpillars have been found in every potato patch examined. This is the first record of the occurrence of this insect in Iowa. (Identified by Carl Heinrich.)

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Connecticut. N. Turner (July 21): Unsprayed potato vines in southern Connecticut have severe tip-burn.

New Jersey. T. J. Headlee and R. C. Burdette (July 24): The potato leafhopper is very abundant.

Pennsylvania. H. E. Hodgkiss (July 26): Potato leafhopper is very abundant generally. More abundant than for several years.

Maryland. E. N. Cory (July 22): The potato leafhopper is moderately abundant.

Virginia. H. G. Walker (July 26): The potato leafhopper is very abundant.

Ohio. T. H. Parks (July 14): The potato leafhopper is very abundant in general on potatoes, beans, and alfalfa. It has already seriously injured some unsprayed potatoes.

N. F. Howard (July 10): The potato leafhopper is very abundant and is doing a great deal of damage to snap beans. In one instance no green beans were harvested because of the ravages of the insect.

Indiana. J. J. Davis (July 25): The potato leafhopper was destructive to potato at Bringhurst and Lafayette during July. General reports indicate its prevalence in many sections of the State.

Illinois. W. P. Flint (July 22): The potato leafhopper is unusually abundant in alfalfa fields and is causing more than the usual amount of damage in the central part of the State. Damage is not noticeable in the northern part of the State.

Kentucky. W. A. Price (July 24): The potato leafhopper is moderately abundant.

Minnesota. A. G. Ruggles (July 15): The potato leafhopper is very abundant.

Wisconsin. E. L. Chambers (July 24): The potato leafhopper is more abundant throughout the State than it has been for several years.

Michigan. R. Hutson (July 22): The potato leafhopper is very abundant on beans and potatoes.

Iowa. H. E. Jaques (July 24): The potato leafhopper is causing heavy loss because of its general abundance over the whole State.

TOMATO PSYLLID (Paratrioza cockerelli Sulc)

Utah. G. F. Knowlton (July 8): The first-generation nymphs on potatoes have matured in nearly all localities of northern Utah. Psyllid yellows has been so damaging to early potatoes in parts of the Ogden district that some potato fields have been plowed under without harvesting, and as large numbers of small or knotty tubers were set, hardly any marketable tubers were produced.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Maine. H. B. Peirson (July): The Mexican bean beetle is about as abundant as last year, but has spread, being found north just beyond Lewiston.

New Hampshire. L. C. Glover (July 24): The Mexican bean beetle is moderately abundant. It has been reported several times as doing much damage to home gardens in Durham.

Connecticut. W. E. Britton (July 24): The Mexican bean beetle is very abundant. N. Turner (July 21): In general, the first generation was not so abundant as it was last year, but commercial damage resulted in all parts of the State. Adults are now emerging.

New Jersey. T. J. Headlee and R. C. Burdette (July 24): The Mexican bean beetle is very abundant.

Pennsylvania. T. L. Guyton (July 20): The Mexican bean beetle is very abundant at Harrisburg.

Maryland. E. N. Cory (July 22): The Mexican bean beetle is very abundant.

Virginia. H. G. Walker (July 26): The Mexican bean beetle is moderately to very abundant.

Georgia. C. H. Alden (July 19): The Mexican bean beetle is very abundant at Cornelia.

Ohio. E. W. Mendenhall (July 3): The Mexican bean beetle is quite abundant, infesting garden beans in central Ohio.

Indiana. J. J. Davis (July 25): The Mexican bean beetle has been reported the past month as abundant; in many localities serious outbreaks were checked by the extremely hot, dry weather.

Kentucky. W. A. Price (July 24): The Mexican bean beetle is very abundant.

Michigan. E. I. McDaniel (July 21): The Mexican bean beetle is particularly abundant in Allegan County. It is now working in field beans. This is the first record, as far as I know, of this insect working in field beans in Michigan.

Minnesota. A. G. Ruggles (July 15): Larvae were found damaging string beans in Rose Township, Ramsey County. We have not been able to find any further

infestations, so we are hoping that this is just a chance introduction. No adults were seen. The day the insect was found, the bean field was burned over by fire.

Alabama. J. M. Robinson (July 20): The Mexican bean beetle is very abundant at Auburn and Birmingham. Adults are abundant over north-central Alabama.

Tennessee. G. M. Bentley (July 22): The Mexican bean beetle is very abundant in eastern and middle Tennessee. Fields were stripped during June and July.

J. U. Gilmore (July): Bean beetles are rather scarce at Clarksville as compared with the infestations of a month ago, when nearly all early plantings were destroyed.

Mississippi. C. Lyle (July 21): Severe injury to beans was reported by a correspondent at New Albany in Union County on July 10.

New Mexico. J. R. Douglass (July 15): Summer rains occurred in the Estancia Valley the last half of June which resulted in two peaks of intensive emergence from hibernation, the first on June 19 and the second on June 23. The greatest number of beetles were in the foothill fields on June 27. Heavy infestation is noted in the Las Vegas area.

PEAS

PEA APHID (*Illinoia pisi* Kalt.)

Maryland. E. N. Cory (July 24): Pea aphids are infesting 500 acres of canning peas in Garrett County.

Wisconsin. E. L. Chambers and assistants (July 1): Pea lice have been moderately destructive in Green Lake County, but it seems that they have not been able to get going as they did last year.

Utah. G. F. Knowlton (June 29): Pea aphids are moderately abundant upon alfalfa at Leamington, Delta, and Hinckley.

CABBAGE

DIAMOND-BACK MOTH (*Plutella maculipennis* Curt.)

Ohio. N. F. Howard (July 10): The diamond-back moth is doing considerable damage to cabbage in the vicinity of Columbus.

HARLEQUIN BUG (*Murgantia histrionica* Hahn)

Virginia. H. G. Walker (July 26): The harlequin bugs are not nearly so abundant as they were at this time last year.

Maryland. E. N. Cory (July 24): The harlequin bug is general over the State, attacking cabbage, kale, etc.

Ohio. N. F. Howard (July 10): The harlequin bug has not become so numerous at Columbus as was anticipated, judging from the winter survival.

Indiana. J. J. Davis (July 25): The harlequin bug was reported as very destructive to cabbage at Austin July 20. This is the northernmost record this year. Last year, because of the previous mild winter, this insect was destructive as far north as Indianapolis. Normally this insect is not destructive north of the tier of counties along the Ohio River from Louisville west.

New Mexico. J. R. Douglass (July 15): Harlequin bugs have made their appearance in the Estancia Valley.

MELONS

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Kentucky. W. A. Price (July 24): The striped cucumber beetle is very abundant.

Michigan. R. Hutson (July 22): The striped cucumber beetle is very abundant.

Wisconsin. E. L. Chambers (July 24): The striped cucumber beetle is much more abundant on cucurbits this year than for several years; it is present generally over the State.

Minnesota. A. G. Ruggles (July 15): The striped cucumber beetle is very abundant.

Iowa. H. E. Jaques (July 24): The striped cucumber beetle is generally distributed in rather severe abundance.

Nebraska. R. Roberts (July 20): The striped cucumber beetle is very abundant. (June 20 to July 20): Inquiries were received from Thayer, Custer, Dawson, and Scotts Bluff Counties. The report from Thayer County included the 12-spotted cucumber beetle (D. duodecimpunctata Fab.).

SQUASH

SQUASH BUG (Anasa tristis DeG.)

Maryland. E. N. Cory (July 24): Squash bugs are reported as generally attacking squash and pumpkin.

Indiana. J. J. Davis (July 25): The squash bug has been reported as abundant and destructive at Wolcottsville, Goshen, Elkhart, and Lafayette.

Nebraska. R. Roberts (June 20 to July 20): Inquiries concerning the control of the squash bug were received from Lancaster, Hall, Custer, Dawson, Deuel, and Scotts Bluff Counties.

Utah. G. F. Knowlton (July 20): Squash bugs are very abundant and damaging to squash at Westpoint.

SQUASH BORER (Melittia satyriniformis Hbn.)

Indiana. J. J. Davis (July 25): The squash vine borer was destructive to squash at Fort Wayne, Hammond, and Elkhart July 4-16. At the former place they were also destructive to pumpkin.

Mississippi. C. Lyle assistants (July): Squash vine borers have been observed completely destroying the crop in several gardens at Tupelo. They are moderately abundant on squash at Ocean Springs.

Nebraska. R. Roberts (July 20): The squash vine borer was reported injuring pumpkins in Richardson County on July 8. A report was received from Lancaster County on July 10.

ONIONS

ONION THrips (*Thrips tabaci* Lind.)

Connecticut. N. Turner (July 21): Onion thrips have caused some damage to maturing set onions in the Connecticut River Valley and severe damage to the few seed onions.

Georgia. O. I. Snapp (June 30): Complaints of damage to beans and other vegetables continue to come in. The thrips are attacking butter beans and snap beans at Marshallville and Fort Valley.

Ohio. N. F. Howard (July 10): Onion thrips are numerous in gardens in the southern part of the State, and it is reported that they are very numerous on commercial plantings in the vicinity of McGuffey.

Wisconsin. E. L. Chambers (July 24): Onion fields in Kenosha and Racine Counties are being injured by thrips, and requests for control are being received from other parts of the State.

Indiana. J. J. Davis (July 25): Onion thrips were reported as destructive at Kendallville, Garrett, and Decatur.

ONION MAGGOT (*Hylemyia antiqua* Meig.)

Wisconsin. E. L. Chambers (June 30): Onion maggots are worse than usual and very abundant throughout the State.

STRAWBERRY

STRAWBERRY LEAF ROLLER (*Ancylis comptana* Froel.)

Ohio. E. W. Mendenhall (July 15): The strawberry leaf roller is very bad in some strawberry plantations at Zanesville.

Indiana. J. J. Davis (July 25): The strawberry leaf roller was reported as abundant at LaGrange, Elkhart, and Fowler.

Tennessee. G. M. Bentley (July 22): The strawberry leaf roller is rather common in Sullivan County near Bristol.

Utah. G. F. Knowlton (June 29): Strawberry leaf rollers are seriously damaging strawberries at College Ward and River Heights. Blackcap raspberries are also attacked. (July 21): Strawberry leaf roller moths are ovipositing in strawberry patches in Utah County, and a few young worms are to be found.

STRAWBERRY CROWN BORER (Tyloderma fragariae Riley)

Tennessee. G. M. Bentley (July 22): The strawberry crown borer is moderately abundant in northeastern Tennessee.

ROUGH STRAWBERRY ROOT WEEVIL (Brachyrhinus rugosostriatus Gyll.)

Utah. G. F. Knowlton (July 7): The rough strawberry weevil is damaging strawberry patches in many parts of northern Utah. (July 21): It is doing more damage in Utah County than last year.

A NITIDULID (Stelidota geminata Say)

Massachusetts. W. D. Whitcomb (July 28): This beetle was found damaging strawberries in Waltham, Newton, and Acton, and was reported but not definitely determined as injurious in several other localities in Middlesex County. It appeared that these beetles were directly responsible for injury to ripe strawberries. In many cases brown rot fungus was also present where the fruits were injured, but it appeared that the beetles had eaten holes before the brown rot caused the fruit to decay. Injury was not confined to over-ripe berries but was present on many berries which were colored on only one side and would not reach their best maturity for picking for one or two days. Howard 17 was the variety injured in each authentic report.

STRAWBERRY ROOT APHID (Aphis forbesi Weed)

Tennessee. G. M. Bentley (July 22): The strawberry root louse is very abundant in northeastern Tennessee.

SUGAR BEETS

BEET WEBWORM (Loxostege sticticallis L.)

North Dakota. J. A. Munro (July 22): The sugar-beet webworm was reported as prevalent and causing crop injury in Ward, McKenzie, Walsh, Grand Forks, Cass, and Foster Counties.

Iowa. C. J. Drake (July 27): The sugar beet webworm did considerable damage in onion fields in the vicinity of Crystal Lake. One field of 12 acres was practically destroyed. (Determined by Carl Heinrich.)

Wyoming. C. L. Corkins (July 21): The sugar-beet webworm is serious in localized areas throughout the sugar-beet sections of the State.

Utah. G. F. Knowlton (July 3): Sugar-beet webworms are causing severe damage to sugar beets in parts of Sevier County. Eleven spraying machines are in operation in the area immediately northeast of Richfield. (July 19): Moths are extremely abundant in a few alfalfa fields, sugar-beet fields, and among weeds margining the fields at Syracuse and Westpoint. In most places the second-generation moths have just commenced, or have not yet commenced to emerge.

New Mexico. J. R. Douglass (July 15): An outbreak on sugar beets has been reported from Las Vegas.

TOBACCO

TOBACCO WORM (*Phlegethontius quinquemaculata* Haw.)

New Hampshire. L. C. Glover (July 24): Adults of the tobacco worm have been reported from Hampton, Rochester, and Durham.

Florida. F. S. Chamberlin (July 14): Hornworm infestations are considered less than normal, on tobacco in Gadsden County, apparently because of the long dry period in this region.

Tennessee. J. U. Gilmore (July 25): Hornworms, (P. sexta Johan. and P. quinquemaculata), both adults and larvae, are scarcer on tobacco at Clarksville for July than they have been in several years. Little damage has occurred so far this season, and this was caused by the first brood in June. The annual heavy emergence of moths is yet to take place.

POTATO TUBER WORM (*Gnorimoschema operculella* Zell.)

Wisconsin. E. L. Chambers (July 24): The tobacco split worm, which was serious on tobacco in Wisconsin in 1931, is again showing up pretty bad in spots in southern Wisconsin this week.

TOBACCO BUDWORM (*Heliothis virescens* Fab.)

Connecticut. D. Lacroix (July 10): The first bud worm was found on tobacco on experiment station plots at Windsor July 1. Thus far the insect has been about as abundant as last year.

CORN EAR WORM (*Heliothis obsoleta* Fab.)

Tennessee. J. U. Gilmore (July): A large number of growers at Clarksville have reported damage to tobacco by budworms within the last two weeks. This is the first season that remedial measures have been taken for the control of this pest locally.

POTATO FLEA BEETLE (*Epitrix cucumeris* Harr.)

Connecticut. D. Lacroix (July 10): Overwintering adults were more abundant on tobacco at East Hartford, Windsor Locks, Windsor, and West Granby during late May and June than they were last season.

TOBACCO THrips (*Frankliniella fusca* Hinds)

Connecticut. D. Lacroix (July 10): The tobacco thrips was first noticed on June 23 and has been on the increase since at Windsor and East Hartford. More damage has been caused to tobacco than last year at this time.

FOREST AND SHADE TREE INSECTS

SATIN MOTH (Stilpnotia salicis L.)

Maine. H. B. Peirson (June 30): The satin moth is abundant on poplar and willow at Winter Harbor and Pittsfield.

New Hampshire. L. C. Glover (July 24): Adults were first taken in the light trap June 29.

Connecticut. W. E. Britton (July 22): Trees in Waterside and Beaver Parks were partially stripped by the caterpillars in June. Egg masses are now numerous on these trees.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

Maine. H. B. Peirson (July): The infestation is very heavy at Topsfield, Waite, Greenbush, Woodland, Townships 1, Ranges 8 and 9, and Indian Townships 3 and 4. Poplar and birch are being stripped.

New Hampshire. L. C. Glover (July 24): Adults of the forest tent caterpillar are more numerous now than those of the eastern tent caterpillar (M. americana Fab.) which are moderately abundant.

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma S. & A.)

Pennsylvania. T. L. Guyton (July 20): The white-marked tussock moth is very abundant at Erie and Pittsburgh.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Virginia. M. P. Jones (July 9): Bagworms have completely defoliated an arborvitae (Thuja occidentalis) tree, which was about 8 feet tall, at Lyon Park. The migrating larvae have spread all over the outside of the house, along the telephone and electric wires, and to many other trees and shrubs. They have been quite common in other parts of Arlington County.

Ohio. E. W. Mendenhall (July 3): The bagworm is quite abundant in southwestern Ohio; and I have even found it on raspberry plants.

Tennessee. G. M. Bentley (July 22): This insect is very abundant on nursery stock, especially the hemlocks, junipers, and arborvitae.

Nebraska. R. Roberts (July 20): A report was received from Richardson County that the bagworm was defoliating cedar trees.

Mississippi. C. Lyle (July 21): Bagworms were very abundant on shrubs at Calhoun City, Calhoun County, on July 20, they were also reported as abundant on arborvitae at Kosciusko, Attala County, on June 27.

ASH

A SAWFLY (Pristiphora banksi Marl.)

Maine. H. B. Peirson (July): The mountain ash sawfly was reported at Portland on ash. Eggs hatched June 25.

BEECH

TWO-LINED CHESTNUT BORER (Agrilus bilineatus Web.)

Connecticut. E. P. Felt (July 24): Somewhat serious damage by the two-lined chestnut borer in beech branches about $2\frac{1}{2}$ inches in diameter was observed at Greenwich.

BIRCH

BIRCH SKELETONIZER (Bucculatrix canadensisella Chamb.)

Maine. H. B. Peirson (July): Moths of the birch leaf skeletonizer were abundant at Bethel July 6.

BOXELDER

BOXELDER LEAF ROLLER (Gracilaria negundella Chamb.)

Utah. G. F. Knowlton (July 5): Boxelder leaf rollers are severely damaging the foliage of boxelder trees in Logan Canyon. (July 21): These insects have severely stripped boxelder trees over much of Provo bench and in places around Provo.

CATALPA

CATALPA SPHINX (Ceratomia catalpae Bdv.)

Maryland. E. N. Cory (July 24): This insect is general on catalpa in Maryland.

Delaware. L. A. Stearns (July 22): The catalpa sphinx is reported from Wyoming.

Indiana. J. J. Davis (July 25): The sphinx was defoliating dwarf catalpa at Bloomington June 22, and defoliating common catalpa at Marion July 3. During the past two weeks we have observed defoliated catalpas in several sections of the State. Apparently it is generally abundant this year.

CYPRESS

CYPRESS LEAF MINER (Recurvaria apicitripunctella Clem.)

Pennsylvania. E. P. Felt (July 24): The depredations of this small moth on bald cypress have come to notice because of injury to trees in the Philadelphia area.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

New Hampshire. L. C. Gloyer (July 24): The elm leaf beetle, which has been so abundant for the past two years, is very scarce this year. I have not seen any sign of injury but I have been told of some in Stratham.

Connecticut. W. E. Britton (July 24): Severe injury to unsprayed trees has been observed in many sections of the State.

Maryland. E. N. Cory (July 24): This insect is attacking large elms generally in Maryland.

Delaware. L. A. Stearns (July 22): The infestation is unusually severe throughout the State.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Wisconsin. E. L. Chambers (July 24): The European elm scale, limited to several localities in Wisconsin, has recently been discovered in three new localities in Sauk and Milwaukee Counties.

Utah. G. F. Knowlton (July 22): The scale is damaging ornamental elm trees at Paradise and is proving a nuisance by attracting large numbers of flies and bees to the vicinity of the house.

FIR

AN APHID (Dreyfusia piceae Ratz.)

Maine. H. B. Peirson (July): New localities for the fir bark louse Dreyfusia piceae are East Sumner, Mt. Vernon, and Solon.

HICKORY

HICKORY BARK BEETLE (Scolytus quadrispinosus Say)

New England. E. P. Felt (July 24): The hickory bark beetle is prevalent there and there in southern New England and southeastern New York, killing some trees and building up an infestation which may result in serious losses another season.

LARCH

WOOLLY LARCH APHID (Chermes strobilobius Kalt.)

Massachusetts. M. D. Leonard (July 5): This aphid was abundant on a large larch tree at Wareham July 4.

A SCOLYTID (Orthotomicus caelatus Eichh.)

Pennsylvania. E. P. Felt (July 24): A small bark beetle was found in large numbers under the bark of a presumably sickly larch tree at Watsontown.

MAPLE

JAPANESE MAPLE SCALE (Leucaspis japonica Ckll.)

Connecticut. W. E. Britton (July 22): A section of trunk of a young Norway maple tree, 3 to 4 inches in diameter, was thoroughly coated with L. japonica. A larger tree had a branch infested. Both were in the western part of New Haven.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

Ohio. E. W. Mendenhall (July 3): The cottony maple scale is very bad in several localities where soft maples are planted for shade in the central part of the State. Not much effort is made to control the scale.

Minnesota. A. G. Ruggles (July 15): This scale is very bad around lake shores in Becker and Ottertail Counties on basswoods.

POPLAR

A HAWK MOTH (Pachysphinx modesta Harr.)

Nebraska. R. Roberts (June 20 to July 20): A Deuel County correspondent reported the big poplar sphinx P. modesta as attacking cottonwoods.

POPLAR LEAF-STEM GALL (Pemphigus populitransversus Riley)

Nebraska. R. Roberts (June 20 to July 20): Cottonwood trees in Keith County were reported infested with the poplar leaf-stem gall the first week of July.

PINE

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Comst.)

Maryland. E. N. Cory (July 10): This pine tip borer is attacking pines at Stevenson.

J. A. Hyslop (July 10): About 10 per cent of the shoots of about 30 plants, Pinus mughus, on my farm at Avanel are browned by this shoot moth. (Det. C. Heinrich.)

A TUSSOCK MOTH (Olene leucophaea S. and A.)

Wisconsin. E. L. Chambers (June 30): This moth has been reported doing serious injury over a large area of jack pine in the vicinity of Spooner, Washburn County.

PALES WEEVIL (Hylobius pales Boh.)

Wisconsin. E. L. Chambers (July 24): Nursery inspectors and blister-rust foremen report more injury from pales weevil than usual, on Scotch pine in particular, but also on white pine and Mugho pine.

PINE BARK APHID (Pineus strobi Htg.)

Minnesota. A. G. Ruggles (July 15): The pine bark aphid has been more than usually abundant.

A PINE SAWFLY (Diprion sp.)

Nebraska. R. Roberts (July 20): Larvae of a species of pine sawfly (Diprion sp.) were reported damaging yellow pine trees in Cheyenne County the latter part of June.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Wisconsin. E. L. Chambers (July 24): The pine needle scale, until recently rarely found in Wisconsin, is now becoming established in light infestations in parks, private plantings, etc., at quite a number of points over the State.

Nebraska. R. Roberts (July 20): A report received from Morrill County the latter part of June stated that the pine leaf scale was attacking Black Hills spruce. An inquiry concerning this pest was also received from Saline County.

Utah. G. F. Knowlton (July 17): The pine leaf scale is damaging Austrian pines at Fairview.

SPRUCE

EASTERN SPRUCE BEETLE (Dendroctonus piceaperda Hopk.)

Maine. H. B. Peirson (July 1): The spruce bark beetle in outbreak form, was killing spruce in Townships 1, Range 7 and Range 3, on July 10.

WHITE-PINE WEEVIL (Pissodes strobi Peck)

New York. E. P. Felt (July 24): The white-pine weevil was found working in the terminal shoots of Norway spruce at Peekskill.

TULIP TREE

TULIP TREE APHID (Illinoia liriodendri Mon.)

District of Columbia. M. P. Jones (July 25): This aphid is very abundant on a tulip tree near the Smithsonian building. Many of the leaves and parts of the ground underneath are covered with honeydew.

WALNUT

WALNUT CATERPILLAR (Datana integerrima G. and R.)

Ohio. E. W. Mendenhall (July 19): The black walnut caterpillars are quite bad on walnut trees in central Ohio. Some property owners are spraying.

WILLOW

COTTONWOOD LEAF BEETLE (Chrysomela scripta Fab.)

North Dakota. J. A. Munro (June 23): Cottonwood and willow leaf beetles were reported as injurious to willows and cottonwoods in Ward, Cavalier, McLean, and Renville Counties during the forepart of June.

WILLOW CURCULLIO (Cryptorhynchus lapathi L.)

Indiana. J. J. Davis (July 25): The mottled poplar and willow borer was abundant on pussy willow at Portland and Elkhart the past month.

EUROPEAN WILLOW BEETLE (Plagiodera versicolora Laich.)

New England. E. P. Felt (July 24): The willow leaf beetle is abundant in southern New England and southern New York, defoliating many willows.

POPLAR TENT MAKER (Melalopha inclusa Hen.)

Connecticut. E. F. Felt (July 24): The poplar tent maker was found in some numbers on willow at Pound Ridge, Stamford.

I N S E C T S A F F E C T I N G G R E E N H O U S E
A N D O R N A M E N T A L P L A N T S

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum Westw.)

Indiana. J. J. Davis (July 25): This whitefly was destructive to tomato and cucumber in a greenhouse at Indianapolis July 13.

ARBORVITAE

HEMISPERICAL SCALE (Saisettia hemisphaerica Targ.)

Ohio. E. W. Mendenhall (July 3): Arborvitae are badly infested with the hemispherical scale in the nurseries about Springfield.

A SOFT SCALE (Lecanium fletcheri Ckll.)

Maine. H. B. Peirson (July): L. fletcheri was attacking arborvitae at Skowhegan July 1.

CREPE MYRTLE

CREPE MYRTLE APHID (Myzocallis kahawaluokalani Kirk.)

Mississippi. C. Lyle and assistants (July): J. P. Kislanko (July 20): Crepe myrtle in Wiggins and Hattiesburg is being heavily infested.

CYCLAMEN

CYCLAMEN MITE (Tarsonemus pallidus Bks.)

Wisconsin. E. L. Chambers (July 24): Nursery inspectors' reports and correspondence indicate unusually serious infestation on delphinium, geranium, and strawberry plants.

DEODAR CEDAR

DEODAR WEEVIL (Pissodes deodarae Hopk.)

Mississippi. C. Lyle assistants (July): R. B. Deen (July 17): Deodar weevils have been more abundant this year than in the past three years. Several Cedrus deodara, both large and small, at Tupelo have been killed.

DOGWOOD

PECAN SESIA (Aegeria scitula Harr.)

Alabama. J. M. Robinson (July 20): This borer is very abundant at Birmingham and Huntsville, where it was destroying nursery stock.

GLADIOLUS

GLADIOLUS THrips (Taeniothrips gladioli M. and S.)

Connecticut. B. H. Walden (July 24): This thrips is very abundant where corms were planted without being treated. It is appearing in many plantings where corms were treated.

New York. P. J. Parrott (July 24): The gladiolus thrips is moderately abundant and becoming injurious in the field.

Delaware. L. A. Stearns (July 22): It was abundant and causing severe injury at Smyrna and generally over the State, June 28.

District of Columbia. W. A. Noal (July 25): The thrips is very injurious to gladiolus at 335 Webster St., N.W.

Wisconsin. E. L. Chambers (July 24): For the first time we are receiving complaints from commercial gladiolus growers of serious losses to their gladiolus. Several wholesale houses in Milwaukee have recently written for information to distribute to their growers on the control of this pest.

Iowa. C. J. Drake (July 27): The gladiolus thrips is doing serious damage in large gladiolus plantings in the vicinities of Des Moines, Hampton, Council Bluffs, Mitchellville, Nevada, Ames, Altoona, and Colfax. This insect was found for the first time in Iowa in 1932.

PUSSY WILLOW

BEAKED WILLOW GALL (Phytophaga rigidae O. S.)

Virginia. M. P. Jones (July 9): About 75 per cent of the twigs of one pussy willow tree (Salix discolor) at Lyon Park, Va., were infested. Many galls were noticed on other pussy willows in the vicinity of Washington, D. C. (Det. C. T. Greene.)

ROSE

UNICORN CATERPILLAR (Schizura unicornis S. and A.)

Mississippi. C. Lyle (July 21): On June 23 Inspector H. Gladney of Ocean Springs, Jackson County, sent us specimens with a report that these insects were very abundant on roses.

SUNFLOWER

A WEEVIL (Rhynchites aeneus Boh.)

Minnesota. A. G. Ruggles (July 15): This weevil was found in St. Paul cutting stems of sunflower below the flowerheads.

I N S E C T S A T T A C K I N G M A N A N D
D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicinae)

Maryland. E. N. Cory (July 17): Heavy swarms of salt-marsh mosquitoes (Aedes sollicitans Walk.) were seen in Worcester and Somerset Counties the week of July 17.

Indiana. J. J. Davis (July 25): Mosquitoes were reported unusually abundant at Indianapolis July 14.

Missouri. L. Haseman (July 25): In spite of the dry period, mosquitoes have been abundant.

Oregon. H. H. Stage (July 25): A. aldrichi Dyar and Knab and A. vexans Meig. bred abundantly in the inundated sections along the Columbia River from Hood River to Astoria beginning the middle of June. Heavy infestations of A. aldrichi originated in the vicinity of Clatskanie and became a serious pest to logging camps twenty miles to the south early in July. Culex tarsalis Coq., usually of minor importance, were abundant in the vicinity of Oswego Lake the first half of July. In one instance as many as 20 or more blood-engorged specimens were taken in a house having fairly good screens.

A DEER FLY (Chrysops callidus O. S.)

Connecticut. M. F. Zappe (July 22): I do not remember when this pest was as abundant as it is at present, attacking humans and stock. It has been increasing in numbers during the last two or three years.

HORSES

THROAT BOTFLY (Gastrophilus nasalis L.)

Iowa. R. W. Wells (July 27): The first adult activity was noted on June 7th

at Ames, Ia. The height of activity, as based on frequent and extensive egg collections, was during the last week in June and the first week in July. Horses slaughtered at Rockford, Ill. on June 26th were not found to be carrying any of the larvae of the new generation. (Mr. E. F. Knipling.)

HORSE BOTFLY (Gastrophilus intestinalis DeG.)

Iowa. R. W. Wells (July 27): Adult activity began on June 20 at Ames, Ia. Three out of 18 horses examined had a few eggs on this date. By June 20th, 12 out of 22 were found to have eggs. First stage larvae were found burrowing the tongues of horses on June 26th, at Rockford, Ill. (Mr. E. F. Knipling.)

H O U S E H O L D A N D S T O R E D - P R O D U C T S

I N S E C T S

TERMITES (Reticulitermes spp.)

Connecticut. W. E. Britton (July 24): Several requests for information on R. flavipes Koll. have been received from Clinton, Milford, and New Haven, and visits have been made and recommendations given regarding treatment of infested buildings.

Indiana. J. J. Davis (July 25): Termites (R. flavipes) continue to be a major pest, many reports being received from all sections of the State.

Nebraska. R. Roberts (July 20): Termites (R. tibialis Banks) were working on elm trees and rhubarb in Harlan County, according to a report received July 17. Associated with this species on rhubarb was the little ground beetle Tachys proximus Say.

ANTS (Formicidae)

Maryland. E. N. Cory (July 24): Camponotus herculeanus pennsylvanicus DeG. is general in houses and lawns; other species are present, but this one is the most numerous.

Nebraska. R. Roberts (July 20): Numerous reports of ants infesting houses and lawns in Lancaster County were received during the latter part of June. A bakery in Seward County was reported infested with ants. The tiny yellow thief ant (Solenopsis molesta Say) was reported working in a pantry in Douglas County. The presence of the big black carpenter ant in houses in Madison County was reported the latter part of June.

Texas. E. W. Laake (June): Twelve premises in Dallas were reported as infested by ants; in nine cases they were Argentine ants (Iridomyrmex humilis Mayr) and in three cases they were carpenter ants.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus L.)

Connecticut. W. E. Britton (July 24): Several correspondents sent specimens of adults of this insect and stated that they were numerous in houses. At least

two of these houses were in close proximity to nurseries. We have records of the larvae injuring the roots of hemlock in nurseries, and also find them with B. sulcatus Fab. on Taxus roots. Adults evidently enter houses to find a hiding place during the daytime.

AN ANOBIID BEETLE (Xyletinus peltatus Harr.)

Mississippi. C. Lyle (July 21): Severe injury to floors by this beetle has been reported recently from Aberdeen in Monroe County and Houston in Chickasaw County.

A FLAT-HEADED BORER (Buprestis lineata Fab.)

Mississippi. C. Lyle (July 21): A correspondent at Pass Christian in Harrison County recently sent specimens with a report that these beetles were causing considerable injury to logs in his house.

INSECT CONDITIONS IN COSTA RICA DURING MAY AND JUNE 1933 C. H. Ballou, San Jose, Costa Rica

(Unless otherwise indicated, observations were made at San Pedro de Montes de Oca.

COCCIDAE

Saissetia hemisphaerica Targ. was taken on coffee at Alajuela during May and was reported very harmful to coffee at Heredia during June. It was also very injurious to acerojo at San Ysidro de Coronado in June. Taken on orange during both months.

Pseudischnaspis bowreyi Ckll. was observed on Cherimoya May 13, when branches were dying from the effect of the attack. It was also very injurious to peach during June.

ALEYRODIDAE

Aleurocanthus woglumi Ashby was noted as being very injurious to coffee May 23, and to citrus during the time herein reported. Guachipelin (Diphysa robiniooides Benth.), a valuable timber tree, was also attacked.

MISCELLANEOUS HOMOPTERA

Cicadella areolata Sign. (det. S. C. Bruner) was taken on the following food plants: Fig, Garcinia tinctoria, pepper (Capsicum annuum L.) soybean, carrot, and chicasquil (Jatropha aconitifolia Mill.), a beautiful small tree used for shade and ornamental purposes; the young tender leaves are used for soup; on coffee and guisaro (Psidium molle Bertol.) at Alajuela; and on Phaseolus vulgaris at San Jose. C. testudinaria Fowl. (det. S.C.B.) was taken on coffee at Sarchif during June. C. coeruleovittata Sign. was taken on New Zealand spinach in May and June, and C. similis Walk. (det. S.C.B.) was observed on the same host during May. C. miniaticeos Fowl. (det. S.C.B.) was noted on soybean and C. pulchella Guer. (det. S.C.B.) on Phaseolus vulgaris during June.

Membracis mexicana Guer. was injurious to pecan during the entire month of

May and to peach during the month of June. Other food plants attacked during the period are: Cherimoya, manderine, mulberry (Morus rubra L.), plum, quince soursop, and ylang ylang.

Aethalion reticulatum L. (Det. S.C.B.) was observed ovipositing on ylang ylang on May 11, and was taken on this host during June.

Collaria oleosa Dist. (det. S.C.B.) ruined the late wheat. Other food plants attacked are: Phaseolus vulgaris, soybean, carrot, and New Zealand spinach.

HEMIPTERA

Dysdercus obliquus H. S. (det. S.C.B.) was observed on coffee at Alajuela on May 24.

Chlorocoris atrispinus Stal (det. S.C.B.) was taken on pecan and avocado during May; taken on plum at Sarchif in June.

Acanthocephala declivis Say var. guatemalena Dist. (det. S.C.B.) was observed on orange during May and June and on grapefruit on May 25.

COLEOPTERA

Diabrotica porracea Har. was taken on Phaseolus vulgaris and cucumber during June.

Cryptocephalus trizonatus Suffr. was recorded from almond, apricot, asparagus, gardenia, pear, and plum at San Ysidro de Coronado; and from apple, mombin (Spondias mombin L.), and guachipelín at San Pedro de Montes de Oca during June.

LEPIDOPTERA

Hyphypena colpodes Wals. was observed on avocado during the entire month of May; and a pupa was found on June 6.

Hypsipyla grandella Zell. is very injurious to cedro dulce (Cedrela montana var. mexicana), even killing the trees. The trees are now about 8 or 9 feet high, but the upper 2 or 3 feet have been killed back repeatedly; so that the trunks are formed of a lot of short lengths.

Epantheria muzina Obt. was taken on coffee on June 6.

Aerulis poeyi Butl. was very injurious to grandilla (Passiflora edulis) during the entire month of May. During June larvae were present and adults were ovipositing. We have a fine grandilla vine in our yard and I believe it would have been killed by this species and A. juno Cr. if we had not destroyed eggs and larvae every day.

Leucoptera coffeella Staint. was taken on coffee during May; also taken on coffee at Alajuela on May 24.

INSECT CONDITIONS IN PUERTO RICO DURING MARCH, APRIL AND MAY 1933
San Juan Plant Quarantine Office

COCCIDAE

Phenacoccus gossypii Towns. & Ckll. was found on leaves and stem of tomato at Loiza on March 28, 1933. (Det. H. Morrison.) (C. S. Anderson.)

HEMIPTERA

Piezosternum subulatum Thunb. was found on a leaf of breadfruit at Bayamon on May 14, 1933. (Det. H. G. Barber.) (C.S.A.)

Corecoris batatas Fab. adults were common on the leaves of grapefruit at Manati May 2, 1933. (Det. H. G. B.) (C.S.A.)

LEPIDOPTERA

A large number of larvae of Hyalurga vinosa Drury were found eating the leaves and stems of Schobera angiosperma at Bayamon April 24, 1933. (Det. W. Schaus.) (A. S. Mills.)

Eublemma cinnamomea H. S. was caught at a light at Bayamon on May 28, 1933. (Det. W. S.) (C.S.A.)

CURCULIONIDAE

Adults of Lachnopus curvipes Fab. were found on grapefruit leaves at Dorado on May 23, 1933. (Det. L. L. Buchanan.) (C.S.A.)

Adults of Diaprepes abbreviatus L. were abundant on the leaves of grapefruit at Vega Alta on May 5, 1933. (Det. L. L. B.) (C.S.A.)

Adults of Tetraonyx 4-maculatus Fab. were found on lantana flowers at Vega Alta on May 23, 1933. (Det. H. S. Barber) (C.S.A.)

DIPTERA

Agromyza jucunda V.d.W. adults were reared from larvae making serpentine mines in the leaves of wild morning-glory at Vega Alta on November 22, 1932. The infestation was heavy. (Det. J. M. Aldrich.) (A.S.M.)

Pholeomyia indecora Loew adults were numerous on crotalaria blossoms at Barceloneta on April 25, 1933. (Det. J. M. A.) (A.S.M.)

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1. *Leucosia* (Leucosia) *leucosia* (L.) (Fig. 1)